

AL-BÎRÛNÎ, THE PIONEER INDOLOGIST

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INDIA has attracted many foreigners, invaders, travellers and merchants since 600 B.C. Cyrus (558-530 B.C.), Darius (522-486 B.C.) invaded and conquered Afghanistan, Baluchistan, Punjab and Sind in the fifth century B.C. Alexander the Great attacked Punjab in 326 B.C. After that the Graeco-Bactrian rule was established in the Punjab and its North-West frontier; from time to time the Punjab and Sind were also conquered by peoples from Central Asia.

Thus during a period of nearly thousand years from the sixth century B.C. to the sixth century A.D., India was invaded by a succession of foreign peoples, the Greeks, the Parthians, the Sakas, the Kushanas, and the Hunas, except during the period covered by the Maurya Empire (324-187 B.C.) and the Gupta Empire (c. 350-450 A.D.).¹

These military contacts also stimulated cultural relations between India, Greece and Central Asia. Thus information about India was diffused in these countries, especially in Greece, which resulted in the first foreign account of India given by Herodotus, the Greek historian (born 484 B.C.). After sometime, foreign travellers and merchants started visiting India from as far as China. Chinese interest in India increased because they had embraced Buddhism which had spread far and wide in Iran (especially Parthia and Khorasan), Iraq, Syria, China and other countries. Buddhism thus played an important part in stimulating social and cultural contact between India and these countries.²

The close geographical proximity of India and the Arabian Peninsula helped the Arabs to act as middlemen in the trade between India and the Hellenistic and Roman worlds. The part played by them in the commercial activities between South-East Asia and the West through the Red Sea and the towns of Syria and Egypt was also important. Long before the

preaching of Islam, the Arab merchants visited the eastern and western coasts of peninsular India.

After the preaching of Islam, commerce and trade between India and the Arab world expanded and more and more Arabs visited India. The conquest of Sind and the Punjab by Muḥammad bin Qâsim was one of the causes of this expansion. It is recorded that the Arabs first attacked Thana in Maharashtra in A.H. 15/A.D. 635. Arabia's position in the line of communication between India and Europe was important. The maritime commerce between the China Sea and Mediterranean Sea, both through the Persian Gulf and the Red Sea, was controlled by the Arab and Indian merchants and sailors from the middle of the eighth to the end of the sixteenth century when they were superseded by the Portuguese, Dutch, French and British merchants.³

There were several Greek and Chinese travellers such as Megasthenes (circa 302-288 B.C.); Fa Hsien (A.D. 399-411), Hiuen Tsang (A.D. 630-644), I-Tsing (A.D. 671-695) among others, who visited India and left accounts of Indian life and society which are available; but they fall short of al-Bîrûnî's level of scholarship. The Chinese travellers were interested mainly in collecting Buddhist books and information about Buddhism and Buddha.

Megasthenes⁴ gave an account of the court of Chandragupta Maurya in his travel accounts. He dealt with seven castes, the character of the people, the administration of the capital, Pataliputra, Municipal Boards, harsh laws, spies, the army and the navy, geographical and physical conditions of the country and information about the manners, customs, religion and other matters.

Fa Hsien⁵ who visited India during the reign of Chandragupta II saw everything through Buddhist spectacles. He was chiefly interested in the Buddhist book of discipline – the *Vinaya Pitaka*. He writes about hospitals and charitable institutions, laws, revenue mainly derived from crown lands, and the law and order situation in the country. The travel account of

Hiuen Tsang,⁶ who stayed in India from A.D. 630 to 644, gave useful information about the social, political, economic, religious and administrative aspects of Indian life during the first half of the seventh century A.D. It tells us about Kanauj, King Harsha, the social manners and customs of the people, army organisation and administration, the University of Nalanda and education in India in general and about Buddhists in detail.

I-Tsing⁷ travelled in India between A.D. 672 and 688. Like other travellers before him, he wrote about the social, religious and economic life of the people of India of his time. He gives detailed information on the mode of life of Buddhist monks, the system of education specially at Nalanda University recording interesting information on medical science and hygiene. If these writings are compared with the voluminous Indian encyclopaedia of al-Bîrûnî, they do not contain the latter's breadth of vision and scientific accuracy, particularly concerning Indian philosophy and positive science.⁸

Several Arab and Persian historians, sailors, geographers, travellers and merchants, for example, Sulaimân the Merchant (circa 225/839), Abû Zaid Hasan Sîrafî (circa 264/877), Abû Dulaf (d. 331/942), Buzurg bin Shahriyâr (circa 300/912), Abu 'l-Hasan al-Mas'ûdî (d. 345/956), al-Muqaddasî⁹ (fl. circa 375/985), al-Bîrûnî (d. 442/1050) and others visited India in the eighth, ninth, tenth and eleventh centuries and left accounts of Indian social life, trade and commerce, religions, literature, customs and civilisation.

The well-known bibliophile Ibn al-Nadîm (d. circa 385/996) wrote about the religions and religious sects of India.¹⁰ Although he did not visit this country, his account is based on a first-hand report on Indian religion. The Barmakide Yahyâ bin Khâlîd (d. A.D. 805), vizier of the Caliph Hârûn al-Rashîd, had sent a deputation of scholars to India which had prepared a report relating to the religions and sects of India¹¹ and Ibn al-Nadîm's report was based on it.

But these accounts are short and sometimes contain stories and anecdotes mostly based on hearsay, although it is claimed by some of them that they are based on personal observations. Their writings "suffer from malobservations, misinformation and inadequacy of investigations."¹² These errors are also found in the writings of those Arab writers on India who wrote after them. So none of these foreign merchants, sailors and travellers can be called an Indologist in the true sense of the term.

Since al-Bîrûnî was outstanding among them, this writer has selected him for a thorough study of his life and time and his most important and original contributions to the Indological studies based on Sanskrit sources. This is because al-Bîrûnî's studies are generally neglected. It is proposed to offer a comparative study of al-Bîrûnî and William Jones (d. A.D. 1794), the founder of the Asiatic Society, whose contributions to Indological studies are also very important indeed.

The Life and Times of al-Bîrûnî

According to modern research, Abu 'l-Raiḥân Muḥammad bin Aḥmad al-Bîrûnî¹³ was born in 362/973 at a village named Kath in a suburb of Khwarazm in Central Asia to a family of Iranian stock and acquired his early education there. Like Abû 'Alî bin Sînâ (Avicenna d. 428/1037) before him he was also compelled to leave his birth place, Khwarazm, at the prime of his youth and to take service at the courts of different Muslim rulers, such as Maṣṣûr bin Nûḥ of the Sâmanid dynasty at Bukhara, Qâbûs bin Wushmgîr of Jurin, Sultan Maḥmûd, Sultan Mas'ûd and Sultan Maudûd, all rulers of Ghaznah.¹⁴ In the beginning, he was attached to the court of Banû Ma'mûn of Khwarazm and also served Sultan Maḥmûd of Ghaznah, when he conquered the city in 408/1017, most probably as a court astrologer-astronomer. He was also in the service of Sultan Mas'ûd (killed in A.D. 1040), the son and successor of Sultan Maḥmûd, to whom he dedicated his magnum opus, *al-Qânûn al-Mas'ûdî* (*Canon Masudicus*).¹⁵

There is a difference of opinion among scholars about the exact date of his death. He died either in 440/1048 or in 442/1050.¹⁶

Difference exists also in connection with the connotation of his name al-Bîrûnî. Bîrûnî means an outsider. It has been suggested that he belonged to Birun a town of Sind. It might as well be al-Nirun. It is quite likely that his family hailed from outside Khwarazm and settled there.¹⁷

His Travel and Stay in India

His association with India began when he entered it with the army of Sultan Maḥmūd. The statement of al-Baihaqî and al-Shahrazûrî that al-Bîrûnî travelled in India for forty years is not correct.¹⁸ Modern research leads to the conclusion that he visited, at intervals North and North Western India such as Kandi, Dunpur, Lamghan, Purshawar, Waihind, Jhelum, Nandan Fortress, Sialkote, Mandakhakor, Multan, Lahore, Rajagiri, Sind and the mountains of Kashmir between 408/1017 and 421/1030.¹⁹

So far we have not been able to trace any evidence to establish that he ever visited Southern India as he does not discuss its religions and culture nor does he mention the dialectician Sankaracharya (circa eight century A.D.) even once in any of his works.

Abul Kalam Azad has discussed the question of al-Bîrûnî's stay and travel in India. Not only on the basis of facts recorded in the *Kitâb al-Hind** but also after studying his *al-Qânûn al-Mas'ûdî* and the *Kitâb al-Ṣaidanah*, he has come to the conclusion that he lived in India for a period of nine or ten years after 410/1019 adding that he travelled extensively in Sind, Punjab and Kashmir.²⁰ Since these conclusions are based on al-Bîrûnî's personal statements, there seems to be little good reason to doubt them.²¹ But his stay in India was not constant and he did not live here continuously for a long time. The

* Henceforth KH for the *Kitâb al-Hind* of al-Bîrûnî.

statement that he did not stay in India for more than two years is also not correct.²²

During this period, al-Bîrûnî had ample opportunities to see personally, as a shrewd observer, the social life of the Indian people and to study their religion, philosophy, culture and civilisation.

This is one of the reasons why his writings on Indian subjects are so objective and accurate. He occupied an eminent position among those scholars and historians who wrote on the culture and civilisation of India. Al-Bîrûnî was a brilliant and prolific polymath. He was not only a famous historian, geographer, and linguist but also a great astronomer, astrologer as well as an expert mathematician. The well-known historian of science, George Sarton has stated that al-Bîrûnî was "one of the very greatest scientists of Islam and all considered, one of the greatest of all times."²³

His Works

Taken as a whole, the titles of 182 books, treatises, translations and fragments of al-Bîrûnî have reached us of which at least twenty-six were on Indian subjects. Unfortunately, most of them are not extant today. At present, only 42 of al-Bîrûnî's books are available²⁴ and they are enough to prove his wide range of interests. They also show his deep learning and extensive knowledge and study of almost all important subjects of his time. Some of his shorter treatises have not yet been published in modern²⁵ critical editions.

Among the 42 titles mentioned, six books, translations and treatises, including the well-known *KH*, deal directly with Indian civilisation, society, culture and natural sciences. One of them is an astronomical work translated into Arabic by al-Bîrûnî which is not available in original Sanskrit.²⁶

His Knowledge of Sanskrit

A question may be asked here as to the extent of al-Bîrûnî's knowledge of Sanskrit. In reply it may be stated that he had fully understood that if one desires to write a book of encyclopaedic dimensions on India, he must know Sanskrit. For this reason, al-Bîrûnî learnt Sanskrit laboriously, being perhaps the first among the foreigners to do so. He did this during his period of stay in India for about nine or ten years, just as William Jones did centuries later. It was for his professional needs that William Jones learnt Sanskrit, whereas al-Bîrûnî's interest in Sanskrit was purely academic and scholarly. There is a difference of opinion among the scholars as to the extent of his knowledge of Sanskrit. There are some who state that he knew Sanskrit very well while others believe that he had only a superficial working knowledge of the language.²⁷ There is no doubt that he knew it more than was necessary for his study of Sanskrit books on India. But he was not an expert in this language as he was in Persian and Arabic. Al-Bîrûnî himself admitted in several works that in translating Sanskrit works into Arabic, he took the help of *pundits* and *shastris*.²⁸ If his knowledge of Sanskrit was not good enough, it would hardly have been possible for him to translate so well and so correctly difficult scientific works bearing on astronomy, astrology and mathematical sciences, which were composed in Sanskrit *ślokas* in which the authors did not express their ideas clearly. In a book published at Tehran by the High Council of Culture and Art, all the Sanskrit words found in his *Indica* have been listed in alphabetical order and studied, which supports this statement.²⁹

Al-Bîrûnî informs his readers that he translated into Sanskrit Euclid's *Elements* and Ptolemy's *Almagest*, one of his Arabic books on the astrolabe,³⁰ and the *Karana-tilaka* of Vijaynand. The first three are lost and only the last one has been edited and published recently. The Indian arithmetical system of Rule of Three was also translated by him as *Fî Rashikât al-Hind*.³¹ Other books that he translated into Arabic or of which he revised the translation are the *Sâmkhya* by Kapila, the book of *Patanjâli*, *Paulisasiddhânta*, *Brâhmasiddhânta* of Brahmagupta,

Brhatsamhitâ and *Laghujâtaka* both by Varâhamihira.³² It is most probable that the Sanskrit translation of the *Kalimah-i-Tayyibah* (Muslim holy creed) that appeared on the coins of Sultan Maḥmūd of Ghaznah was done by him.³³

His Monumental Book on India

The German Orientalist, Edward C. Sachau, published the Arabic text of al-Bîrûnî's *KH* in 1887 and its English translation in 1888. The full title of this book on India is *Kitâb fî Taḥqîq mâ li 'l-Hind min Maqâlat Maqbûlat fî 'l-'Aql au Mardhûlah* (book dealing with researches on India on matters acceptable to reason or those which should be rejected³⁴) which is generally known as *Kitâb al-Hind* or *Indica*. A revised critical edition of the text was published by the Dâ'irat al-Ma'ârif, at the Osmania University of Hyderabad in 1958 (548 + 30 + liv pp.), and a third partial edition was published by 'Abd al-Ḥalîm Maḥmūd at Cairo in 1959. Three abridgements of this book have been published in English based on the translation of Sachau. In addition, it has also been translated into Hindi, Bengali, Malayali, Urdu, Persian and Russian.³⁵

The *KH* is one of the most important books of al-Bîrûnî which is devoted to India only. It was compiled in 421/1030 after the death of Sultan Maḥmūd of Ghaznah, and discusses in eighty chapters Hindu religion and philosophy, eras, laws and customs, ethics, society and its different castes, Hindu religious books and arts, Sanskrit grammar, Indian astronomy. Astrology and mathematics also find a prominent place in this book because he was most interested in them. No other book has been written in any other language, not even in Sanskrit, which contains a comprehensive discussion of these subjects, and at the same time presents a comparison with the sciences and philosophy of the Greeks and the Arabs. Indian scholars admit its versatility and importance, although it also contains objective criticism on the thoughts and ideas, beliefs and practices of late ancient India. Al-Bîrûnî's criticism is without bias or malice in the spirit of a true scholar, and he is never polemical.³⁶

One of the objects of al-Bîrûnî in compiling this encyclopaedia of India was to strengthen the cultural relations between India and the Arabic-speaking world. He desired that the educated Arabs and others who knew Arabic should look at Indian culture and civilisation as he presented them on the basis of his own study and knowledge. Perhaps it was also his intention to introduce the sciences and culture of India to the Arabic-speaking world through his translations and monographs. He wanted to present his countrymen "with an impartial description of the Indian theological and philosophical doctrines on a broad basis, with every detail pertaining to them" as he himself says both at the beginning and the end of the book.³⁷ Perhaps on religious sects and doctrines of the Indians he could give his reader more new and accurate information than any other writer, for, according to his own statement, he had in this only one predecessor, Abu 'l-'Abbâs 'Alîrânshahrî.³⁸ Not knowing him or the authority he follows, i.e. Zurqân, we cannot form an estimate as to how far al-Bîrûnî's information was derived from 'Alîrânshahrî. There can hardly be any doubt that Indian philosophy in one or other of its principal forms had been communicated to the Arabs already in the first period. But when al-Bîrûnî produced before his compatriots or fellow-believers the *Sâmkhya* by Kapila and the book of *Patânjali* in good Arabic translation,³⁹ they seem to have appeared as something entirely new. These books admirably qualified him to write the corresponding chapters of the *Indica*. The philosophy of India particularly of *Sâmkhya* seems to have fascinated his mind, and the noble ideas of the Bhâgavadgîtâ probably came near to the standard of his own persuasions. Perhaps it was he who first introduced this gem of Sanskrit literature into the world of Muslim readers, as did Charles Wilkins for the English-speaking world.⁴⁰

At a time when Islam had not spread all over India, al-Bîrûnî gave an account of contemporary Indian society. Not only his knowledge of Sanskrit but also his personal relations with *pundits* and *shastris* and his stay in India helped him to understand their culture, civilisation and the social order of the Hindus. But his association was mainly confined to the Brahmins, high-caste and upper-class educated Hindus of Northern

India, and he presented primarily the contemporary Brahmanical thought and doctrines. Most probably for this reason he was particularly interested in the ideas and tenets of the Visnu sect and their monotheistic beliefs. He had particularly studied the Puranas⁴¹ and he must have been interested in their contents. Al-Bîrûnî was not, however, interested much in Indian political history.⁴²

Al-Bîrûnî stated that all those writers and authors who wrote on Indian sciences and civilisation before him depended mainly on secondary sources. But he assured his readers that he would base his account mainly on original sources and present the views and opinions of the Indians, exactly as they were without any change whatsoever and that he would also give references to his sources. Like a modern historian, al-Bîrûnî fully understood the value and importance of original sources and his book is based mainly on the Sanskrit works and almost all his statements are documented and correct.⁴³

The account of those Arab and Persian merchants, sailors and travellers who visited India before al-Bîrûnî are brief, superficial and often incorrect. Their writings suffer from several defects. These errors are also found in the writings of those Arab and Persian writers on India⁴⁴ who wrote after them.

Sachau writes:

Judging al-Bîrûnî in relation to his predecessors, we come to the conclusion that his work formed a most marked progress. His description of Hindu philosophy was probably unparalleled. His system of chronology and astronomy was more complete and accurate than had ever before been given. His communications from the Puranas were probably entirely new to his readers, as also the important chapters on literature, manners, festivals, geography, and the much-quoted chapter on historic chronology. He once quotes Razi, with whose works he was intimately acquainted and some Sufi

philosophers, but from neither of them could he learn much about India.⁴⁵

Sir William Jones

William Jones⁴⁶ was born in London on the 28th September, 1746, in a Welsh family settled in the Island of Anglesey - a versatile genius not only a scholar, historian, essayist, thinker, linguist but also a judge and a politician. He was educated mainly at Harrow and University College, Oxford. When quite young, he had settled in London as a tutor of mathematics which helped him to come into contact with important personalities and celebrities of the time such as Isaac Newton, Samuel Johnson, Edward Haley, Lord Parker, Lord Althorp and others.⁴⁷ By dint of his personal effort and interest, he learnt Latin, Greek, French and Italian. Among Asian languages he was primarily interested in Hebrew, Arabic, Persian, Turkish and Sanskrit. At Oxford, he maintained, at his own expenses, an Arab from Aleppo called Mirza in order to study Arabic under him. He learnt Sanskrit from two *pundits* rather late in life during his stay at Calcutta from September 1783 till his death in April 1794.⁴⁸ He did this in order to study the Hindu law and literature in original Sanskrit. Even at Calcutta he continued to improve his knowledge of Arabic and Persian under two different teachers. His correspondence with the Polish Scholar Count Reviczki and the Dutch Arabist H.A. Schultens and others reveals his wide knowledge of Arabic, Persian and Turkish literature. His interest in foreign languages was so vast and varied, that he knew as many as twenty-eight languages including Chinese.⁴⁹

In the beginning of his life he was much more interested in classical and oriental subjects than in law and the legal profession. By 1768 he became famous as an orientalist and his English translation of a Persian manuscript *History of Nâdir Shâh*, established him in Europe as an orientalist.

He waited for a long time for the judgeship in Bengal because he believed that he would be able to carry on his study and research in oriental literature there. He was appointed as a

puisne Judge in the Supreme Court of Calcutta in 1782 in which year he was knighted and married. It was the Frigate Crocodile in which Jones travelled and reached Calcutta in September 1783.

During the voyage from London to Calcutta, which took five months, Jones thought about the subjects which he would like to study during his stay in India and he selected the following sixteen which were quite vast and varied.

- 1) The laws of the Hindus and Mohamedans,
- 2) The history of the ancient world,
- 3) Proofs and illustrations of scripture,
- 4) Traditions concerning the Deluge, etc.,
- 5) Modern politics and geography of Hindustan,
- 6) Best mode of governing Bengal,
- 7) Arithmetic and geometry and mixed sciences of Asiatics,
- 8) Medicine, chemistry, surgery, and anatomy of the Indians,
- 9) Natural products of India,
- 10) Poetry, rhetoric and morality of Asia,
- 11) Music of the eastern nations,
- 12) The She-king of 300 Chinese odes,
- 13) The best accounts of Tibet and Kashmir,
- 14) Trade, manufacturing, agriculture and commerce in India,
- 15) Mughal administration, and
- 16) Marathas' constitution.⁵⁰

It would not be necessary to give a list of Jones' publications concerning India in general and ancient India in particular. Apart from the English translation of the *Shakuntala* in 1789 introducing this gem of Sanskrit literature to the world for the first time, the *Gita Govindo* of Jayadeva (Sons of Joydeb), *Institutes of Manu* (Indian Law-Book), he also translated some parts of the Vedas. One of his most important contributions is his annual discourse which were original scholarly papers dealing with the culture and civilisation of Asia with an emphasis on Indian language, literature, philosophy and sciences. He had also studied India's natural sciences and published papers and books on these subjects. He had composed nine hymns extolling Hindu Gods and Goddesses.⁵¹

Al-Bîrûnî and Jones

There are many points of similarity in the basic approach of al-Bîrûnî and Jones to Indian languages, literature, sciences and philosophy which were studied by both of them. They believed in the indivisibility and unity of human civilisation. They were great humanists who transcended the barriers of race, religion, colour, country and language.

Jones studied the culture and civilisation of India in comparison with other great civilisations of the world and tried to place India within a larger canvas. For example, he observed that Sanskrit, Greek, Latin and some other languages were derived from a parent stock in some distant past. This had a great linguistic bearing and subsequently gave birth to comparative philology and linguistics.⁵²

Al-Bîrûnî also followed a comparative and interdisciplinary method when he discussed Indian religion and philosophy. For example, while discussing the Hindu Vedanta philosophy he compared its teachings with Greek Neo-Pythagoreans and Muslim Sufis. That he was perfectly right in comparing the Sufis' philosophy with certain doctrines of the Hindus is apparent from the essential identity of the systems of the Greek Neo-Pythagoreans, the Hindu Vedanta philosophers, and the Sufis of the Muslim world. The authors whom he quotes, Abû Yazîd al-Bisṭāmî and Abû Bakr al-Shiblî, are well known representatives of Sufism.⁵³ There are other analogies which he draws, not taken from Greek but from Zoroastrian, Christian, Jewish, Manichean, and Sufi sources.⁵⁴

One difference in the writings of al-Bîrûnî and Jones is that Jones had formulated and clearly stated his principal objective in studying Asia, i.e. "Whatever is performed by man and produced by Nature within the geographical limits of Asia." But these kinds of clear-cut principles and objectives were neither formulated nor stated by al-Bîrûnî anywhere in his writings.

Another difference between al-Bîrûnî and Jones was that the former was only an observer on Indian life and society but Jones was a participant. He was professionally and politically (culturally) involved in the affairs of India being a representative of the British Raj. This subjective involvement was not possible in the case of al-Bîrûnî in the situation and circumstances in which he stayed in India for some years. The number of years al-Bîrûnî and Jones spent in India were, significantly, almost the same, i.e. nine or ten years. Al-Bîrûnî faithfully recorded what he observed of the Indian ways of life and re-examined Indian civilisation and culture embodied in their written books available to him. In the case of Jones it may be said that he made India a subject of his research in the modern sense of the term. This was a great advantage for Jones which al-Bîrûnî could not enjoy because he lived and worked in the early eleventh century of the Christian era.

There were major differences between the circumstances and the political situation in which al-Bîrûnî and Jones lived and worked. At the time when al-Bîrûnî lived in India, Sultan Maḥmûd of Ghaznah had invaded it several times during a period of thirty years and caused serious damage which he noted in his book on India with great concern and disapproval.⁵⁵ So it is quite understandable that most of the Indians were hostile to Muslims in general. He himself explains the basic differences between Hindus and Muslims and records in great detail the difficulties he faced as a foreigner and as a Muslim in doing research in India. He writes:

They totally differ from us in religion as we believe in nothing in which they believe and vice versa. . . . all their fanaticism is directed against those who do not belong to them - against all foreigners. They call them *meleccha*, i.e. impure, and forbid having any connection with them, be it by inter marriage or any other kind of relationship or by sitting, eating and drinking with them because, thereby, they think, they would be polluted. They consider as impure anything which touches the fire and the water of a foreigner. . . . the antagonism between them and all

foreigners receives more and more nourishment both from political and religious sources.⁵⁶

The Hindus believe that there is no country but theirs, no nation like theirs, no king like theirs, no religion like theirs, no science like theirs. . . . They are by nature niggardly in communicating that which they know, and they take the greatest possible care to withhold it from men of another caste among their own people, still much more, of course, from any foreigner.⁵⁷

Since Jones was a judge at Calcutta and an official of the East India Company he had all the facilities at his disposal to study Indian subjects and he faced no difficulty at all like al-Bîrûnî did. Indian manuscripts, books and *pundits* were easily available to him, while al-Bîrûnî had to search them out alone. He writes: "I do not spare either trouble or money in collecting Sanskrit books from places where I supposed they were likely to be found and in procuring for myself, even from very remote places, Hindu scholars who understand them and are able to teach me."⁵⁸

Moreover, Jones enjoyed the material comforts and lived a life of luxury and opulence which al-Bîrûnî could not have done in India where he was a foreigner and a stranger; but unlike Jones he was not committed to performing day-to-day official duties.

An important question may be asked as to what was the motive behind the study of ancient Indian history, culture and civilisation by al-Bîrûnî and Jones. It has been stated that Jones took an interest in India in order to strengthen the British hold on it as a colony and to govern it properly, and his motive was that he wanted to serve his own country. This criticism seems to be justified by the very nature of the official British character of his presence in India. A good knowledge of ancient Hindu and Islamic laws was necessary for the proper administration of justice in India.

While refuting this criticism A.L. Basham stated that Jones studied India for its own sake and not for any material gain adding that he (Jones) and his associates spent money for their research work,⁵⁹ but this cannot be accepted as a valid reason as one can spend money supporting imperialism and/or colonialism.

However, in so far as this writer's knowledge of Jones' writings goes he found them, by and large, to be impartial and objective like the writings of al-Bîrûnî on India. Unlike some other orientalist writing on India, he was not biased or prejudiced or misleading. His writings do not show any missionary zeal and he was not interested in preaching the Gospel in India as some others did. Jones wrote to Lord Althorp, "... it is my ambition to know India better than any other European ever knew it."⁶⁰ But only a searching scrutiny of all his writings on India can give a correct and satisfactory reply to the above question.

Al-Bîrûnî was not biased or prejudiced against the people of India because he was not a representative of Sultan Maḥmûd of Ghaznah (d. 421/1030) who had not established any Empire in India. He studied India for its own sake. He was an astrologer and most probably he was interested in Indian astrology on which he has included one full comprehensive chapter in his book on India.⁶¹ He was also interested in Greek astrology.⁶² He wanted to acquire knowledge and understanding of a civilisation which was very different from his own. It is correct to state that al-Bîrûnî's basic motive for his interest in classical India was his intellectual curiosity and acquisition of knowledge for its own sake. He was not interested in preaching Islam to the Hindus of India.

Al-Bîrûnî clarifies his main objective in writing the book on India stating that books written by the Muslims on religious and philosophical doctrines of non-Muslims, especially of the Hindus, were full of errors. His master Abû Sahl asked him to write an authentic book comprising what he knew about the Hindus "as a help to those who want to discuss religious questions with them and as a repository of information to those

who want to associate with them.”⁶³ He concludes his book on India by asserting: “What we have related in this book will be sufficient for any one who wants to converse with the Hindus and to discuss with them questions of religion, science or literature on the very basis of their own civilisation.”⁶⁴ As a great historian and scientist of all times, he always possessed a burning curiosity to know the truth. He writes: “We ask God to pardon us for every statement of ours which is not true.”⁶⁵ In another place he states that he was translating his book on the astrolabe into Sanskrit “being simply guided herein by the desire of spreading science (knowledge).”⁶⁶

The Asiatic Society, Calcutta

There is no doubt that William Jones played an important part in studying India’s ancient culture and civilisation revealing her great heritage. But his greatest achievement and most important contribution in this regard is the establishment of the Asiatic Society of Calcutta in 1784 which provided facilities and tools for regular study and sustained research in all aspects of classical India. It brought into existence a team of Indologists, both Indian and Western, which continued this work after his death. Only a few outstanding names of this team of Western scholars along with their most important works may be mentioned here. H.T. Colebrooke (1794-1815) and Charles Wilkins (1750-1836) translated parts of the Veda and Bhâgavadgîtâ respectively. Charles Wilkins started the study of Indian Epigraphy. H. H. Wilson (1815-1832) compiled the first *Sanskrit-English Dictionary*, translated the *Meghadûta* of Kalidasa, studied the *Râjataranginî* of Kalhana, the history of Kashmir, and contributed to the reconstruction of the broad outlines of the history of ancient India. The Hungarian Csoma de Koros (1784-1842) studied Tibetan Buddhist texts and compiled a Tibetan dictionary and a book on Tibetan grammar. James Prinsep’s (1832-1838) decipherment of the inscriptions specially of Aşoka is considered a great discovery. Sir Alexander Cunningham (1814-1893) laid the foundation of Indian archaeology.⁶⁷ Others studied comparative mythology.

The establishment of the Royal Asiatic Society of Bengal marked the beginning of Oriental Studies of which Indology formed a special branch and its study received fresh impetus.

Obviously, it would not be possible to discuss in this article the immense contribution of this Society to the study of history, culture and literature of the Orient specially of India by Indian Western scholars during the last two hundred years. A large number of Sanskrit, Pali, Arabic and Persian texts were published by this Society in good critical editions and some of them were also translated into English. Several scholars also presented studies and critical analyses of these texts.⁶⁸ This was an important event in the intellectual life of India and these publications received wide response and appreciation not only in India but also in the West.

One of the results of the activities of the Asiatic Society of Calcutta was the establishment of a number of such Asiatic Societies for the study of Asia, specially India, all over the world. The Royal Asiatic Society of Great Britain and Iceland was founded in London by Henry Thomas Colebrooke, one of the ex-Presidents of the Royal Asiatic Society of Bengal, Calcutta (1807). Branches of this Royal Asiatic Society were established at Bombay, Colombo (1845), Hongkong (1847) and Malaysia (1877) in course of time.

So many societies and institutions concerning the Orient specially India were set up in India that only the most outstanding can be mentioned here and this list will be confined to the end of the Second World War only. Even then it cannot be claimed to be complete. Mention may be made of the Adyar Library and Research Centre, Madras (1886); Itihas Sansadhak Mandal, Poona (1901); V.V. Research Institute, Hoshiarpur (1903); Mythic Society, Bangalore (1904); Kamrup Onushandhan Society (1912); Karnataka Historical Research Society, Dharwar (1914); Bihar Research Society, Patna (1915); Oriental Institute, Baroda (1915); Bhandarkar Oriental Research Institute, Poona (1917). Centres for the Study of Tibetan, Chinese, Sanskrit, Pali, Arabic and Persian were established at Vishva-Bharati of Rabindranath Tagore at Santiniketan; Trigonometri-

cal Survey of India (1818); Geological Survey of India (1851) ; Anthropological, Zoological (1916), Botanical (1890), Archaeological and Linguistic Surveys of India; The School of Tropical Medicine at Calcutta (1857); the Indian Museum, Calcutta (1866); the Medical College, Calcutta (1835) and the Indian Science Congress (1913) were also established due to the inspiration received from the Royal Asiatic Society of Bengal, Calcutta.⁶⁹

The impact of the establishment of the Asiatic Society at Calcutta was far-reaching and perplexing. From this point of view William Jones far surpassed al-Bîrûnî, but the situation and the circumstances in which al-Bîrûnî and William Jones lived and worked in India were very different and al-Bîrûnî cannot be criticised for failing to establish an institution and motivate a band of scholars to supplement his research work on India or to carry on his work after his death, as was done by Jones.

There are several reasons why al-Bîrûnî could not establish in India or elsewhere an institution or society for the study of classical India.

In the early eleventh century, the time was not ripe and the conditions were not favourable in India so that al-Bîrûnî could not establish a society and generate a movement for Indological and Oriental studies as William Jones could do in the late eighteenth century.

He did research work without any royal patronage of Sultan Mahmûd of Ghaznah or any other ruler. William Jones was an officer of the British Raj and he was helped not only by the English scholars living at Calcutta but also by Warren Hastings, the Governor-General of India.

The establishment of an institution for the study and research on India or Asia required a huge amount of money which al-Bîrûnî did not have. Most of the English scholars who assisted William Jones in the establishment of the Asiatic Soci-

ety were officials of the East India Company "who met the expenses of their research from their own pocket".

In ancient and mediaeval times institutions for study and research were established either by rulers or their viziers or rich noblemen and not by individual scholars. For example, the Bait al-Hikmah⁷⁰ was established by Caliph Hârûn al-Rashîd at Baghdad in A.D. 830 and the Bait al-'Ilm⁷¹ latter by al-Hâkim, the Fâtimid Caliph, at Cairo in A.D. 1000.

There was keen professional rivalry among the scholars in the eleventh century - for example, the rivalry between al-Bîrûnî and Ibn Sînâ (d. A.D. 1037) and between Ibn Sînâ and Miskawaih (d. A.D. 1030). Many other examples of this kind of rivalry between individual Muslim scholars can be recorded. Such rivalries stood in the way of collaborative efforts such as we find in modern times.

It has to be stated in favour of al-Bîrûnî that whatever he achieved as an individual scholar on the basis of his personal interest and effort could not have been achieved by any other individual in the early 11th century. Without doubt, Jones or any of his assistants could not write a book so important and valuable like the *KH* of al-Bîrûnî even in the 18th and the 19th centuries. The subjects discussed in this book are so vast and varied encompassing the whole gamut of Indian society, culture and civilisation, that it has not been surpassed by Jones or any of his assistants or friends, especially on Indian astronomy,⁷² astrology, religions and philosophy. When this writer makes this statement he does not intend to belittle or demean the value and importance of the very momentous and original researches done by Jones, his assistants and successors which are worthy of our praise and admiration.

A modern Persian scholar, Sayyid Muḥammad Raḍâ Jalâlî Nâ'inî states:

If any one after al-Bîrûnî desires to do research work on the science, philosophy, literature, customs, culture, religion and people of ancient India

and wants to write a comprehensive book, the *KH* will be an indispensable source for him. In spite of the fact that about ten centuries have passed since the compilation of this book, it is still considered a reliable source by the research workers and scholars in general and by the Indologists in particular. It will remain a reliable source for the history of ancient Indian culture and civilisation in future also.⁷³

He adds:

It would not be an unjust claim to state that al-Bîrûnî is the father of history writing in India, and that he not only studied and explained clearly the sciences, culture, manners and customs of India but also acted as a pioneer in translating the Indian sciences and culture for the outside world. It is a fact that no one before him had compiled such a work of encyclopaedic dimension on Indian sciences and culture and it is quite likely that it would not be possible for any one after him to compile such a comprehensive work in future.⁷⁴

One of the reasons why al-Bîrûnî remained in obscurity for many centuries, almost up to the 19th century, was that his research work on India was not carried on and continued even by Muslim scholars and historians who flourished after him. They were just not interested in writing on India. An Indo-Persian poet Amîr Khusrau who died in 725/1325 has given useful information about contemporary Indian society and its culture. But he did not do any research on classical India, and the works of al-Bîrûnî were not known to him. Generally speaking, as far as is known it was Abu 'l-Faḍl, the vizier of Akbar, the great Mughal, who revived the tradition and continued the research work of al-Bîrûnî on India. This writer has also published a comparative and comprehensive study of the researches of Abu 'l-Faḍl⁷⁵ and al-Bîrûnî about India.⁷⁶ In the 17th century Dârâ Shukôh (executed in 1069/1659) also studied Hindu religion and philosophy deeply.⁷⁷

However, al-Bîrûnî was quite well known among the Muslim historians and scientists and was admired by them, throughout the mediaeval period. But he was discovered and presented to the European world of learning by Edward C. Sachau who published the Arabic texts and English translations of his two very important books the *al-Âthâr al-Bâqiyah*⁷⁸ or The Vestiges of the Past and his *Kitâb al-Hind* or Book on India.

Concluding Remarks

Both al-Bîrûnî and Jones are great scholars. If al-Bîrûnî was the premier Indologist, Jones was the founder of the Asiatic Society at Calcutta and it is quite clear that the latter continued and advanced the research works of al-Bîrûnî on classical India. Both of them worked hard for pure love of knowledge. So tribute has to be paid to both of them.

It is generally believed that with the establishment of the Asiatic Society at Calcutta in 1784, the foundation of Indology was laid and Sir William Jones (d. A.D. 1774), the founder of the Society, was a pioneer of Indological studies.⁷⁹ Strictly speaking, this is not a correct statement because al-Bîrûnî (d. 442/1050) studied the literature, religions, philosophy and natural sciences of India from original sources about seven hundred and fifty years before Jones.⁸⁰

The works of Jones and the scholars of the Asiatic Society doing research work on the history and civilisation of India are being continued even today. This is done not only in the Asiatic Society of Calcutta but also in the institutions of Oriental Studies throughout India and all over the world in the institutions already mentioned above, but it has not been finished. It will continue but it has to be streamlined and remembered that al-Bîrûnî is the premier Indologist of the world.⁸¹

ENDNOTES

- (1) R.C. Majumdar, "India's Relations with Countries in Asia: Political and Cultural (600 B.C.-1200 A.D.)" in P.M. Joshi and M.A. Naeem (eds.), *Studies in the Foreign Relations of India. Prof. H.K. Sherwani Felicitation Volume* (Hyderabad, March, 1975), pp. 102-134 at p. 104. The Achaemenids should be added to the above list of invaders. See André Wink, *Al-Hind. The Making of the Indo-Islamic World*, vol. i, *Early Mediaeval India and the Expansion of Islam 7th and 11th Centuries* (Leiden: Brill, 1990), pp. 396; vol. ii, *The Slave Kings and the Islamic Conquest 11th to 13th Centuries* (Leiden: Brill, 1997), p. 427.
- (2) Himansu P. Ray, *The Winds of Change: Buddhism and the Maritime Links of Early South Asia* (Delhi: Oxford University Press, 1994), x + 234 pp.
- (3) V.K. Jain, *Trade and Traders in Western India* (New Delhi, 1990), xvi, 302 pp. André Wink, *op.cit.*, vol. i, Chapter II and III, pp. 25-108; Sayyid Sulaimân Nadawî, 'Arab wa Hind ke Ta'alluqât (Azamgarh, 1930); Eng. Translation by Prof. Salah ad-Din as *Indo-Arab Relations* (Hyderabad, 1962), p. 238. M.S. Khan. *India and the Arab World Through the Ages*, Sectional Presidential address at the Indian History Congress, 38th Session, Bhubaneswar (Dec. 1977), p. 19.
- (4) Megasthenes, *Ta Indiku*, ed. by E.A. Schwanbuck of Bonn University (1986); J.W. McCrindle, *Ancient India as Described by Megasthenes and Arrian*, edited by Ram Chandra Jain (New Delhi, 1972), p. 263.
- (5) Fa-Hsien, *Record of Buddhist Kingdoms* tr. by James Legge (Oxford, University Press, 1886), p. 123, and *Pilgrimage of Fa-Hsien* (Calcutta, Baptist Mission Press, 1848), p. 373.
- (6) Thomas Watters, *On Yuan Chwang's Travel in India*, ed. by T.W. Rhys David and S.W. Bushell with two maps and an Itinerary by V.A. Smith (Delhi, Munshiram Monoharlal, 1961), vol. i, xiii + 401 pp.; vol. ii, 357 pp.

- (7) I-Tsing, *A Record of the Buddhist Religions as Practised in India and the Malay Archipelago* (A.D. 671-695), ed. J. Takakusu (Oxford, Clarendon Press, 1896), 240 pp.
- (8) G. Bühler, *Trübnerns Record* (August, 1885), p. 63, states, "Both these accounts left us by the Greeks and the Chinese Pilgrims read, by the side of Beruni's work, like children's books on the compilations of uneducated and superstitious men who marvelled at the strange world into which they had fallen but understood its true character very little." Quoted by E. Sachau, in his English introduction to the Arabic edition of the *KH*, p. vi.
- (9) For al-Muqaddasî and other Arab travellers, see Dâr al-Muṣannifîn, *Hindustân 'Arabôn kî Nazar mên*, 2 vols. in Urdu (Azamgarh, 1960-1962), vol. i, 400 pp.; vol. ii, 401 pp.; Khurshid Ahmad Fariq, *'Arabî Literature men Qadîm Hindustân* (Delhi: Nadwatul Musannifîn, 1973), p. 367. Sayyid Sulaimân Nadawî, *'Arab wa Hind kî Ta'alluqât* (Allahabad, 1930). About the Arab geographers' knowledge of India, see the eight volumes of their geographical works in the series *Bibliotheca Geographorum Arabicorum*, edited by M.J. De Goeje (Leiden, Brill, 1879-1938). S. Maqbul Ahmad, *India and the Neighbouring Territories in the Kitâb Nuzhat al-Mushtâq of al-Sharîf al-Idrîsî* (Leiden, 1960); Syed Mohammad Husayn Nainar, *Arab Geographer's Knowledge of Southern India* (Madras University, 1948), p. 241.
- (10) See his *Kitâb al-Fihrist*, ed. by Gustav Flügel, 2 vols. (Leipzig, 1872), Beirut reprint, vol. i, pp. 345-349, translated into English by Bayard Dodge as *The Fihrist of al-Nadîm (A Tenth-Century Survey of Muslim Culture)*, 2 vols. (New York: Columbia University Press, 1970), vol. ii, pp. 826-838.
- (11) Ibn al-Nadîm gives a detailed account of the religions and sects of India. *op.cit.*, vol. i, pp. 345-349. The chapter is entitled *Madhâhib al-Hind*. It also contains an account of Buddha, pp. 346-47 of the Arabic text.
- (12) K.A. Fariq, *op.cit.* (note 9 above), introduction.

- (13) See "Abu'l-Raiḥân Muḥammad bin Aḥmad al-Bayrûnî" by F. Shamsi in Hakim Mohammad Said (ed.) *Al-Bîrûnî Commemorative Volume* (Karachi, 1979), pp. 260-288; D.J. Boilot, "al-Bîrûnî" in the *Enc. of Islam*, New ed. vol. i (1960), pp. 1226-1233; see Seyyed Hossein Nasr, "The Life, Works and Significance of al-Bîrûnî" in *An Introduction to Islamic Cosmological Doctrines*, revised edition (Albany: State University of New York Press, 1993), pp. 107-115. See also pp. 116-150. E.S. Kennedy, "Al-Bîrûnî" in the *Dictionary of Scientific Biography* (Henceforth DSB), vol. ii (New York, 1970), pp. 147-158; Ahmad Sa'eed Khan, *A Bibliography of the Works of Abu'l-Raiḥân al-Bîrûnî* (New Delhi, 1982), p. 77. Translated into Persian as *Kitâb Shanâsî Abu 'l-Raiḥân Bîrûnî* by 'Abd al-Ḥayy Ḥabîbî (Tehran, 1352, A.H. Shamsi), p. 230; see also *Kitâb Shanâsî Tauṣîfî Abû Raiḥân Bîrûnî* by Seyyed Hossein Nasr (Tehran, 1973), p. 76. M.S. Khan, "A Select Bibliography of Soviet Publications on al-Bîrûnî", in *Janus* (Amsterdam, 1975), 62(4), pp. 279-288. It contains a bibliography of his works and their studies published after 1972. See also 'Ali Aḥmad al-Shaḥḥât, *Abu 'l-Raiḥân al-Bîrûnî* (Cairo, 1968), p. 242. On the life and contributions of al-Bîrûnî, see Fuat Sezgin, *Geschichte des Arabischen Schrifttums*, vol. v (Leiden, 1974), pp. 375-383 (henceforth GAS). Aydın Sayılı, *Beyruniye Armağanı* (Ankara: Türk Ta'rih Kurumu Basımevi, 1974), 301 pp., M.S. Khan, "A Classified Bibliography of Recent Publications on Al-Bîrûnî", in the *Muslim World Book Review*, vol. xx/3 (Leicester, 1994), pp. 65-77.
- (14) See Muhammad Nazim, *The Life and Times of Sultan Maḥmûd of Ghaznah* (New Delhi, Munshiram Manoharlal, 1971), 271 pp.; André Wink, *op.cit.*, vol. ii, pp. 129-134, 141-142, 235-237, 243-244, 330-332 and *passim*; C.E. Bosworth, *The Later Ghaznavids Splendour and Decay* (Edinburgh, 1977), 196 pp.
- (15) *Kitâb al-Qânûn al-Mas'udî* by al-Bîrûnî. See S.H. Barani's analysis of the contents of this book, and a discussion of the importance of al-Bîrûnî's astronomical theories, in his introduction to the text edition of this book "An Introductory Discourse on the Arabic Text," vol. iii, pp. i-lxxv. However, it requires a thorough study by a team of expert astronomers and scientists. See note 71 below. See also Seyyed Hossein Nasr, *Cosmological Doctrines*, pp.

- 108-109, 112, 128 and 133. E.S. Kennedy "has already found several Babylonian astronomical ideas which were not known, or at least not used by the Greeks but were present in al-Bîrûnî's work". *Ibid.*, p. iii, note 17.
- (16) It is generally stated that he died in 440/1048 but D.J. Boilot records that he died in 442/1050. See his "L Oeuvre d'Al-Bîrûnî Essai Bibliographique" in the *Melange, MIDEO*, vol. ii (Cairo, 1955), pp. 161-256, at p. 163, and his paper on al-Bîrûnî published in the new edition of the *Encyclopaedia of Islam* (vol. i, 1960, pp. 1236-1238).
- (17) Farman Fatehpury, *Abu 'l-Raiḥân Muḥammad bin Aḥmad al-Bîrûnî kî Jâ'i Paidâ'ish Kâ Qaḍiyah* (Controversy about the Birth-place of al-Bîrûnî) in Hakim Mohammad Said (ed.) *op.cit.*, pp. 827-837; see M.S. Khan, "Was Birun in Sind the Birth Place of al-Bîrûnî"? presented at the 55th Session of the Indian History Congress held at Aligarh, in December, 1994, quoting from a less known but important Arabic Ms. at Topkapi Sarayi Muzesi, Istanbul, Ms. of *Qânûn al-Dunyâ*, Revan Odasi, No. 1638.
- (18) See al-Baihaqî, *Ta'rîkh Hukamâ' al-Islâm*, ed. Muḥammad Kurd 'Alî (Damascus, 1396), p. 72, and al-Shahrazûrî, *Nuzhat al-Arwâḥ wa Rauḍat al-Afrâḥ*, ed. Syed Khurshid Ahmad, 2 vol. 1st ed. (Hyderabad, 1396/1976), vol. ii, p. 86.
- (19) KH, p. 270; *Indica*, I, 317.
- (20) Abul Kalam Azad, "Abu 'l-Raiḥân al-Bîrûnî wa Jughrâfiyat al-'Âlam" in the *Thaqâfat al-Hind* (New Delhi, June, 1952), pp. 2-33, at pp. 25-27, published as a book let at Karachi by the Institute of Research and Publication, Pakistan, in Urdu (July, 1980) pp. 128. References to al-Bîrûnî's *al-Qânûn al-Mas'ûdî* and *Kitâb al-Saidanah* are given by Abul Kalam Azad.
- (21) See M.S. Menon, "Al-Bîrûnî and His Contributions to Medieval Muslim Geography" in *Islamic Culture*, vol. xxxiii, no. 4 (October, 1959), pp. 213-218, in which he states that he lived in India for nine years.

- (22) See "Al-Biruni's Stay and Travel in India" by J.S. Mishra in the *Journal of Indian History* (Trivandrum, 1966), vol. xlv, pt. II, pp. 515-20, where the statement that his stay in India could not have exceeded two years, is incorrect. The Hindi *Vishakosh* (or *Encyclopedia*), vol. i (Varanasi, 1980), follows the error of al-Baihaqî and quotes Shahrazûrî stating "Bîrûnî Bhârat me châlîs varsh rahê." S.M.H. Holdlivala states that "Its duration could not have exceeded thirteen years". See his *Studies in Indo-Muslim History* (Bombay, 1939), p. 132, and M.S. Khan, "Al-Bîrûnî and the Political History of India", *Oriens* (Leiden, 1979), vol. 25-26, pp. 86-115.
- (23) *Introduction to the History of Science*, vol. i, From Homer to 'Umar al-Khayyâm (Baltimore, 1950), p. 707.
- (24) See D.J. Boilot's excellent *Bibliography* mentioned, and the other *Bibliographies*. His observations on optics from *Kitâb al-Lama'ât* preserved in the *Jâmi' Bahadur Khani* of Ghulam Hossain Jaunpuri (1790-1862) and other works were not available when D.J. Boilot published his *Bibliography* in 1966.
- (25) A list is given in the introduction of the text editions of the *Karana Tilaka*, pp. 69-70.
- (26) This is the *Karana Tilaka* or *Ghurrat al-Zijât*, A Hand Book of Astronomy, by Bijaynand of Benaras translated into Arabic by Abu 'l-Raihan Muḥammad bin Aḥmad al-Bîrûnî with the exposition of the underlying principles. Texts edited by N.A. Baloch with an English introduction, University of Sind, Pakistan (1973), Arabic text 67 pp., English introduction 74 pp. Among his translations from Arabic into Sanskrit, al-Bîrûnî mentions Euclid's *Elements*, Ptolemy's *Almagest* and treatise of his own on the construction of the astrolabes. None of them is available now.
- (27) There is a difference of opinion about al-Bîrûnî's knowledge of Sanskrit. J.S. Mishra states, "we find 3000 Sanskrit words in the Arabicised form in the *Tahqîq mâ li'l-Hind* which also prove his excellent knowledge of the language". See his *al-Bîrûnî, An Elev-*

enth-Century Historian (Varanasi, Vishwavidyalaya Prakashan, 1985), 87 pp., at p. 32. But Edward Sachau does not express a favourable opinion about his knowledge of Sanskrit. See his "Introduction to the Arabic edition, section 4, "The Author's Study of Sanskrit", pp. xiv to xix; Suniti Kumar Chatterjee seems to agree with him. See his "al-Bîrûnî and Sanskrit", in *Al-Bîrûnî Commemoration Volume* (Calcutta, 1951), pp. 53-100 (henceforth BCVC). See also Ahmed Hasan Dani, "Al-Bîrûnî on Sanskrit Literature" in the *Journal of the Pakistan Historical Society*, vol. 1/4 (Karachi, October, 1953), pp. 301-317; J. Gonda, "Remarks on al-Bîrûnî's Quotations from Sanskrit Text" in BCVC pp. 111-123.

- (28) KH, p. 18; *Indica*, p. 24-C. But al-Bîrûnî does not record the names of his teachers as does Abu 'l Fadl about his informants in the *Â'in-i-Akbarî*. Edward Sachau, "Annotations", vol. ii, p. 310, states "Perhaps Sripala was a scholar living at Multan at the time of the author".
- (29) S.M. Reza Naini and N.S. Shukla, *Lughat Sanskrit dar Ma Li'l Hind* (Tehran : High Council of Culture and Arts, 1353 A.H. Shamsi), pp. 286.
- (30) See KH, p. 106; *Indica*, I, 137.
- (31) Edition published in the *Rasâ'il al-Bîrûnî* (Hyderabad: Dâ'irat al-Ma'ârif al-'Osmâniyyah, 1948), pp. 38; A.K. Bag, "al-Bîrûnî on Indian Arithmetic" in the *Indian Journal of the History of Science*, vol. x (1975), pp. 174-185.
- (32) *Al-Bîrûnî's India*, edited in the Arabic original by Edward Sachau (London, 1887). English Introduction, pp. xx-xxi, for his statement that he was translation the works of Pulisa and Brahmagupta, see KH, p. 119; *Indica*, p. 154.
- (33) This is: *Lâ Ilâha Illa-Allâh, Muḥammadun Rasûl-Allâh* or there is no God but Allah and Muḥammad is His Prophet. The Sanskrit translation appearing on the coins is: *Avyaktam ekam, Muḥammada avatara*. See Suniti Kumar Chatterjee, *op.cit.*, p. 96. This translation does not seem to be correct.

- (34) The Hyderabad edition (1956) has: *Kitâb al-Bîrûnî fî Tahqîq mâ li 'l-Hind min Maqâlat Maqbûlat fî 'l-'Aql au Murdhûla* based on the Bibliotheque National, Paris MS Schefer no. 6080, pp. 548 + 30 + XLIV.
- (35) For the Russian translation, see *Selected Works*, vol. ii, *Indiv* (India), chief editor, V.I. Belyaev; translated by A.B. Khalidov and Yu. N. Zanadovskii with a commentary by V.G. Erman and A.B. Khalidov (Tashkent, 1963), pp. 727. See my bibliography in *Janus*, p. 282, no. 34. The three abridgements of the English translation of Edward Sachau are by Ahmed Hasan Dani, Ainalse T. Embree and Qeyamuddin Ahmad; Urdu trans. by Syed Asghar Ali, 2 vols. (Delhi, 1941-42); Abridged Urdu transl. by Qeyamuddin Ahmad and Abdul Hayy as *al-Bîrûnî kâ Hindustân* (New Delhi: National Book Trust, 1993), pp. 305. Hindi trans. by Shantaram (Allahabad: Indian Press, 1926-28).
- (36) Al-Bîrûnî writes, "In most parts of my work I simply relate without criticising unless there be a special reason in doing so". *KH*, p. 19; *Indica*, p. 25; Ahmed Hasan Dani, "al-Bîrûnî's *Indica* a Re-Evaluation" in Hakim Mohammad Said, *op.cit.*, pp. 182-189.
- (37) Al-Bîrûnî has himself stated that he wanted "to write down what I know about the Hindus as a help to those who want to discuss religious questions with them and as a repertory of information to those who want to associate with them". *KH*, p. 5 and *Indica*, I, p. 7. Al-Bîrûnî repeats it in the last paragraph of this book; *KH*, pp. 547-48; *Indica*, vol. ii, p. 246.
- (38) Not much information about his life and times are available but Fathullâh Mujtabâ'î has given some information about him and his book *Kitâb Bayân al-Adyân*. See his "Bîrûnî wa 'Ilm-i-Adyân" in *Yâdnâma-i-Bîrûnî*, or *Bîrûnî Commemoration Volume* (Tehran, 1353 A.H. Shamsi), pp. 129-143, at p. 140, note 1.
- (39) Edward C. Sachu, Introduction to the *Indica*, p. xxxviii.

- (40) He has quoted extensively from the *Bhâgavadgîtâ*. It was edited by G.K. Shastri (Gondal, Kathiawad, 1953). See Pandit Sunderlal's excellent book *Geeta aur Qur'ân*.
- (41) For al-Bîrûnî's knowledge of the *Purânas*, see J. Gonda, "Remarks on al-Bîrûnî's Quotation from Sanskrit Texts" in the BCVC, pp. 111-110. Several critical editions of the *Purâna* texts are available now with English translations and notes. See the paper entitled "Al-Bîrûnî and the *Purânas*" presented by M.S. Khan at the Nikhila Bharata Sanskrita Maha Sammellana organised by Howrah Sanskrita Sahitya Samaja, held on the 27th and 28th December, 1986. Not yet published.
- (42) See the Quarterly *Oriens*. Note 22 above.
- (43) *KH*, p. 5; *Indica*, vol. i, p. 7. "He surpassed his predecessors by going back upon the original Sanskrit sources, trying to check his Pandits by whatever Sanskrit he had contrived to learn, by making new and more accurate translations, and by his conscientious method of testing the date of the Indian astronomers by calculation. His work represents a scientific *renaissance* in comparison with the aspirations of the scholars working in Baghdad under the first Abbasid Khalifa". *Indica*, preface, p. xxxvii.
- (44) See Abû Sa'îd Gardîzî, *Zain al-Akhabâr*, ed. by 'Abd 'l-Hayy Habîbî (Tehran, 1347 A.H. Shamsi), pp. 248-254 (on the *Festivals of the Hindus*).
- (45) *Indica*, Introduction, p. xxxix. See also Fathullâh Muġtabâ'î "Bîrûnî wa Hind", (Persian), *Essays on al-Bîrûnî*, published on the occasion of His Millenary (Tehran: 1352 A.H. Shamsi), pp. 242 ff.
- (46) For an excellent note on Jones, see Alan Jones, "The English and Arabic: 1: Sir William Jones and His Predecessors", *Islamic Culture*, no. 3, 1997, pp. 1-17.
- (47) S.N. Mukherjee, *Sir William Jones : A Study in Eighteenth Century British Attitude of India* (Cambridge: University Press, 1963), pp.

- viii + 199. Bibl, pp. 179-194; Garland Cannon, *Oriental Jones. A Biography of Sir William Jones (1746-1794)* (Bombay: Indian Council for Cultural Relations, 1964), pp. X-215, Bibl. pp. 196-206; O.P. Kejariwal, *The Asiatic Society of Bengal and the Discovery of India's Past 1784-1838* (Delhi: Oxford University Press, 1988), pp. xiv + 293 Bibl. pp. 271-276; A.J. Arberry, *Oriental Essays: Portraits of Seven Scholars* (London: George Allen and Unwin Ltd. 1960), see "The Founder", Chapter-II, pp. 48-86; Suniti Kumar Chatterjee, "Sir William Jones 1746-1794" in the *Sir William Jones Bicentenary of His Birth Commemoration Volume* (Calcutta: Royal Asiatic Society of Bengal, 1948), pp. 81-96.
- (48) S.N. Mukherjee, *op.cit.*, pp. 88-90, O.P. Kejariwal, *op.cit.*, p. 47. His first teacher of Sanskrit was Pandit Ramlochan.
- (49) O.P. Kejariwal, *op.cit.*, p. 37.
- (50) O.P. Kejariwal, *op.cit.*, Chapter-II, p. 29.
- (51) Regarding Sir William Jones's contribution see *The Works of Sir William Jones with the Life of the Author*, edited by Lord Teignmouth, vols. i to xii (Delhi: Agam Prakashan, 1976). Garland Cannon, *Sir William Jones, An Annotated Bibliography of His Works* (Honolulu: University of Hawaii Press, 1952), pp. xiv + 73. Regarding Jones's contributions to Arabic and Persian Studies, see M.S. Khan, "Sir William Jones' Contributions to Arabic and Persian Studies" in *Journal of the Asiatic Society*, vol. xxii, nos. 3-4 (Calcutta, 1980), pp. 49-56.
- (52) Holger Pederson, *The Discovery of Language, Linguistic Science in the Nineteenth Century*, trans. John Webster Spargo (Bloomington: Indiana University Press, 1972); Theodor Benfey, *Geschichte der Sprachwissenschaft und Orientalischen Philologie in Deutschland* (Munich, 1869).
- (53) See KH, pp. 66-67; *Indica*, I, pp. 87-88, Annotations of E.C. Sachau at II, pp. 289-90.
- (54) Edward Sachau, *loc.cit.*, p. xlii.

- (55) He writes: "He utterly ruined the prosperity of the country (India) and performed those wonderful exploits by which the Hindus became like atoms of dust scattered in all directions, and like a tale of old in the mouth of the people". See *KH.*, p. 16; *Indica*, I, 22.
- (56) See *KH*, p. 14; *Indica*, I, pp. 19-20.
- (57) *KH*, p. 18; *Indica*, I, pp. 22-23.
- (58) *KH*, p. 19; *Indica*, I, p. 24.
- (59) See A.L. Basham, Foreword to O.P. Kejariwal's book, p. ix.
- (60) Edward W. Said, *Orientalism* (Harmondsworth: Penguin Books, 1978), p. 78.
- (61) *KH*, Chapter LXXX, pp. 515-548, *Fî Ahkâm al-Nujûm* etc., *Indica*, II, pp. 211-246.
- (62) See *Indica*, Introduction p. XXVI. Both al-Bîrûnî and William Jones are keen to streamline common and parallel ideas in Indian and Greek thought. See specially *KH*, p. 18; *Indica* I, p. 24.
- (63) *KH*, pp. 4-5; *Indica*, pp. 6-7.
- (64) *KH*, pp. 547-48; *Indica*, II, 246.
- (65) In the beginning of the book, al-Bîrûnî explains the different causes why people tell lies and quotes a verse of the Qur'ân (Sûrah vi verse 134) in praise of those who adhere to truth. *KH* p. 2; *Indica*, I, pp. 3-4.
- (66) *KH* p. 106, stating *hîrşan minnî 'alâ nashr al-'Ilm*, *Indica* I, p. 137. Here 'Ilm may mean not just knowledge, but scientific knowledge.
- (67) For all of them see O.P. Kejariwal, *op.cit.*, pp. 76-220; C.E. Buckland, *Dictionary of Indian Biography* (Delhi-Varanasi: Indological

Book House, 1971), pp. xii + 494. S.N. Mukherjee, *op.cit.*, Chapter VI, pp. 85-110.

- (68) See Rajendralal Mitra, *Centenary Review of the Asiatic Society of Bengal (1784-1884)*, pt. I, History of the Society (Calcutta, The Asiatic Society, 1986). The History of the Society from 1885 to 1985 is under preparation. These researches have been published in 156 volumes of the *Journal of the Asiatic Society*. It also published 300 separate works under the Bibliotheca Indica series in different languages such as Sanskrit, Prakrit, Pali, Rajasthani, Kashmiri, Hindi, Bengali, Tibetan, Kui and others. Specially the Arabic and Persian text editions published by the Society are held in high esteem in Iran and Arab countries.
- (69) There might be other Institutions and Societies. The Asiatic Society of Bangladesh, Dacca, has been mentioned here.
- (70) The *Bait al-Hikmah* was established by Hârûn al-Rashîd and his illustrious son Ma'mûn al-Rashîd developed it. See also D. Sourdél, *Encyclopaedia of Islam*, vol. i, New ed. (1960), p. 114. Saeed ad-Dewaji, *Bait al-Hikmah* (Mosul, 1392), pp. 88.
- (71) The *Bait al-'Ilm* or *Dâr al-'Ilm* was established by the Fâtimid Caliph al-Hâkim in A.D. 1005. See D. Sourdél, *Dâr al-Hikmah*, in *Encyclopaedia of Islam*, vol. ii, New ed. (1965), pp. 126-127. An informative and thoroughly documented book, so far neglected, is the *Les Bibliothèques Arabes Publiques et Semi-Publique en Mesopotamie, en Syrie et en Egypte au Moyen Age* by Youssef Eche (Damascus, 1967), p. 447.
- (72) See E.S. Kennedy's remarks in note 15 above. The Italian Orientalist Carlo Nallino praises *al-Qânûn al-Mas'ûdî* as an excellent book "which has no match" *lâ Nazîr Lahu*. See his *Arabian Astronomy, Its History During the Medieval Times in Arabic* (Roma, 1911), pp. 38-40. Al-Bîrûnî was interested in Indian Astronomy and has given a fairly correct account of various Indian astronomical schools. The Indian astronomers he studied specially were Brahmagupta, Paulisa, Varahmihira, Balabhadra, Uptala, Vateswara and others. This could not have been achieved by

William Jones and his successors. See F.C. Auluck, "Al-Bîrûnî and Indian Astronomy" in the *Commemoration Volume of Bîrûnî International Congress* (Tehran, 1976), pp. 513-517. See M.S. Khan, "An Examination of al-Bîrûnî's Knowledge of Indian Astronomy" in the *History of Oriental Astronomy*, ed. by G. Swarup and others (Cambridge: University Press, 1987), pp. 139-145; David Pingree, "Al-Bîrûnî's Knowledge of Sanskrit Astronomical Texts" in *The Scholar and the Saint (Al-Bîrûnî and Rûmî)*, ed. by J. Chowlkowaki (New York, 1975), pp. 67-80.

- (73) See "Abu 'l-Rayhan Bîrûnî Fâtih 'Ulûm wa Adab-i-Hind" in *Yâdnâma-i-Bîrûnî or Bîrûnî Commemoration Volume* (Tehran: 1353 A.H. Shamsi), pp. 309-310.

(74) *Loc.cit.*

- (75) See Zoe Ansari (ed.), *Life, Time and Works of Amir Khosrau Dehlawî* (New Delhi: Bombay, n.d.), pp. 360; Aziz Ahmad, *Studies in Islamic Culture in the Indian Environment* (Oxford: Clarendon Press, 1964), pp. 115-118; P. Hardy, "Amir Khosraw", *Encyclopaedia of Islam*. New ed., vol. i (1960), pp. 444-445; Mohammed Wahid Mirza, *Life and Times of Amir Khosrau* (Calcutta, 1935), pp. 262; See *Dîwân-i-Kâmil Amîr Khosrau Dehlawî*, edited by Sa'îd Nafîsî (Tehran: Jawidan Publications, 1343 A.H. Shamsi), pp. 635.

- (76) See *Â'in-i-Akbarî* of Abu 'l-Fadl, vols. i and ii, ed. by H. Blochman (Calcutta, Asiatic Society, 1872-1877) which deals with the social life of India, its culture and civilisation of which one of the sources was the *Kitâb al-Hind* of al-Bîrûnî. Long before Abu 'l-Fadl, a Persian historian and a contemporary of al-Bîrûnî, Gardîzî, wrote about the Indian religions in his *Zain al-Akhbâr* and Indian religions were also discussed by Abu 'l-Ma'âlî Muhammad al-Husainî al-'Alawî (fl. circa A.D. 1090) in his book *Kitâb Bayân al-Adyân*. See T. Koruyanagi "Abu Rayhan al-Bîrûnî wa Tahqîq-i-Hind", in the *Yadnama-i-Bîrûnî*, pp. 55-72 at p. 63. The historian Rashîd al-Dîn Fadl-Allâh (killed 1313 A.D.) copied information from the *Kitâb al-Hind* in his *Jâmi' al-Tawârîkh*. See J.A. Boyle, "Bîrûnî and Rashîd al-Dîn" in *The Commemoration*

Volume of Bîrûnî International Congress in Tehran (Tehran: High Council of Culture and Art, 1976), pp. 99-112.

- (77) Satish Chandra, *Dara Shukoh*, in *Encyclopaedia of Islam*, New ed. vol. ii (1965), pp. 134-135; K.R. Qanungo, *Dara Shukoh* (Calcutta, 1952) Bikramjit Hasrat, *Dara Shukoh, Life and Works* (Viswa Bharti, 1953), pp. 304. In his *Majma' al-Bahrain* and other works he tried to show that both Vendata and Islam aimed at comprehending the truth. See *Majma' al-Bahrain* or *The Mingling of the Two Oceans* by Prince Muhammad Dara Shikuh, edited with an English translation, notes and variants by M. Mahfuzu'l Haq (Calcutta: The Asiatic Society, 1982), pp. 75 Eng. Trans; Persian text variants 76-133, + Index.
- (78) Edited by Edward C. Sachau (Leipzig, 1878), translated as *Chronologie orientalischer Volker* (Leipzig, 1878), pp. lxxiii + 362 + 30. English Translation as *The Chronology of Ancient Nations or Vestiges of the Past* (London, 1879); Lahore reprint 1983, pp. 464.
- (79) The Indology is the scientific study of India and its people through its languages, literature, social life, history, religion, philosophy, ethnology, customs, arts and architecture and antiquities. See "Evolution of Indology" and "The Future of Oriental Studies and the Role of the Asiatic Society" in the *Journal of the Asiatic Society*, vol. xxxvi/3 (Calcutta, 1994), pp. 27-29, and 51-55.
- (80) This fact is generally ignored. As stated above, al-Bîrûnî's contributions are not taken notice of compared to the recognition accorded to Jones for his Indological Studies. The modern writers on Jones, S.N. Mukherjee and O.P. Kejariwal and others, have stated in their books that Jones is the founder of Indology which is not correct. See S.N. Mukherjee, *op.cit.*, Chapter V.
- (81) Suniti Kumar Chatterjee writes, "he was the first of the Scientific Indologists and one of the greatest of all times." See BCVC, p. 83.